

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims

Claims 3, 9 and 21 are currently being amended. Claims 1, 2, 4-8, and 10-14 were previously cancelled without prejudice or disclaimer. Claims 23-27 are currently being added. The subject matter of the added claims is supported by the Original Specification, for example at page 9, line 13 to page 11, line 3. Thus no new matter is added.

Claim Rejections - 35 U.S.C. 112

Claim 21 is rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. As suggested by the Examiner, claim 21 is amended to recite the subject matter disclosed in the Original Specification. In particular, claim 21, as amended, recites 1.33×10^{-2} Pa which was disclosed in the Original Specification, for example, at page 11, lines 5-6. Accordingly, applicants respectfully request that the 35 U.S.C. § 112 rejection be withdrawn.

Claim Rejections - 35 U.S. 103

Claims 3, 9, and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kreiskott (“Continuous electropolishing of Hastelloy...”) in view of JP 07-105750 (JP '750) and Hsu (U.S. Patent No. 6,569,745) and Christen (U.S. Patent No. 6,296,701). This rejection is respectfully traversed.

Claims 3 and 9, as amended, recite, a method of producing a superconducting wire that includes among other features, planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. In the Office Action dated October 8, 2010, the Examiner cites Kreiskott for disclosing “electropolishing”, however none of the references of record teach or suggest planarizing a textured metal substrate by at least one of mechanochemistry and chemical polishing.

Kreiskott teaches electropolishing by applying a polishing voltage to a tape through a brass brush contact on both sides of a electropolishing bath. (Page 614, first column) Kreiskott also teaches gold-plated electrodes used to close the circuit. (Page 614, first column). However, Kreiskott fails to teach or suggest planarizing the substrate by at least one of mechanochemistry or chemical polishing, as recited in claims 3 and 9.

JP '750 teaches a polycrystalline metallic base with a crystal face (110) that is normal to the metallic substance. (Paragraph [0023]) JP '750 fails to teach or suggest planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. Instead of planarizing, JP '750 teaches controlling the silver crystal orientation to reduce micro unevenness. (JP' 750, machine translation paragraph [0013]) Accordingly, Kreiskott and JP '750, alone or in combination fail to teach or suggest at least the above recited features of claims 3 and 9.

Hsu is directed to a shared bit line cross point memory array structure. (Abstract) In particular, Hsu recites an oxide deposited on a substrate having a thickness of 500 nm and 1000 nm where the oxide is planarized to a thickness of between approximately 50 nm and 500 nm. (Column 2, lines 60-66) Accordingly, Hsu planarizes the oxide and not the metal substrate as recited in claims 3 and 9. In addition, Hsu fails to teach or suggest planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. Accordingly, Kreiskott, JP '750, and Hsu, alone or in combination, fail to teach or suggest at least the above recited features of claims 3 and 9.

Christen is directed to biaxially textured laminate articles having a polycrystalline biaxially textured metallic substrate. (Abstract) Christen fails to teach suggest, planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. In particular, Christen is cited for annealing a nickel substrate in a vacuum atmosphere, or reducing atmosphere, at a temperature of 600-900°C for 5 hours for the purpose of removing metal oxides. (Column 8, lines 16-30) Christen does not mention planarizing. Thus, Christen fails to teach or suggest the above recited features of claims 3 and 9. Accordingly, Kreiskott, JP '750, Hsu and Christen, alone or in combination, fail to teach or suggest at least the above recited features of claims 3 and 9.

Accordingly, the references of record fail to teach or suggest the above recites features of claims 3 and 9. Therefore, claims 3 and 9 are believed to be allowable. Because claims 15-22 directly or indirectly depend from claims 3 and 9, they are believed to be allowable for at least the same reasons claim 3 and 9 are believed to be allowable.

New Claims

New claims 23-27 are added to further protect aspects of the method of producing a superconducting wire. New claims 23-27 each depend directly or indirectly from independent claim 3. Accordingly, each new claim 23-27 is patentably distinguishable over the references of record, at least for the reasons discussed above with respect to claim 3. In addition each new claim 23-27 is further distinguished from the references of record.

For example, new claim 23 is dependent on claim 3, and incorporates every feature of the parent claim and further recites, planarizing by mechanochemistry includes applying a polishing slurry that comprises a corrosive acidic or basic liquid. As discussed above regarding claim 3, Kreiskott, JP '750, Hsu and Christen, alone or in combination, fail to teach, suggest or render predictable, planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. Instead, the references of record teach using electropolishing. Since the references of record fail to teach or suggest planarizing using mechanochemistry, the references of record also fail to teach or suggest applying a polishing slurry that comprises a corrosive acidic or basic liquid.

For example, new claim 24 is dependent on claims 3 and 23, and incorporates every feature of the parent claims and further recites, applying the polishing slurry includes pressing and rotating an applicator to apply the polishing slurry on the metal substrate. As discussed above regarding claims 3 and 23, Kreiskott, JP '750, Hsu and Christen, alone or in combination, fail to teach, suggest or render predictable, planarizing a textured metal substrate by at least one of mechanochemistry, and chemical polishing. Since the references of record fail to teach or suggest planarizing using mechanochemistry, they also fail to teach or suggest pressing and rotating an applicator such that the polishing slurry is applied against the metal substrate.

For example, new claim 25 is dependent on claim 3, and incorporates every feature of the parent claim and further recites, the basic liquid for the polishing slurry comprises SiO₂ or Al₂O₃. As discussed above regarding claim 3, Kreiskott, JP '750, Hsu and Christen, alone or in combination, fail to teach, suggest or render predictable the features of claim 3. Since the references of record fail to teach or suggest planarizing using mechanochemistry, the references of record also fail to teach or suggest a polishing slurry that comprises SiO₂ or Al₂O₃.

For example, new claim 26 is dependent on claim 3, and incorporates every feature of the parent claim and further recites, the reduced atmosphere during the thermal treatment comprises hydrogen and argon gas being at least 1 mol% concentration. As discussed above regarding claim 3 above, the references of record fail to teach, suggest or render predictable the features of claim 3. Moreover, Christen is cited for annealing a Ni substrate in vacuum, in a hydrogen gas atmosphere. However, Christen fails to teach or suggest a thermal treatment with an atmosphere that comprises hydrogen and argon gas being at least 1 mol% concentration.

For example, new claim 27 is dependent on claim 3, and incorporates every feature of the parent claim and further recites, the reduced atmosphere during thermal treatment comprises hydrogen and argon gas being at least 3 mol% concentration. As discussed above regarding claim 26 above, the references of record fail to teach, suggest or render predictable a thermal treatment with a reduced atmosphere comprising hydrogen and argon gas being at least 3 mol% concentration.

Since the references of record fail to teach or suggest the features of claims 23-27, they are believed to be allowable.

Concluding Remarks

After amending the claims as set forth above, claims 3, 9, 15-27 are now pending in this application.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

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